Subperitoneal Hemorrhage

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• Clinical diagnosis of subperitoneal hemorrhage can be made in a substantial percentage of cases by recognition of a quite constant syndrome—provided the possibility of bleeding is considered. Progressive anemia, as indicated by repeated counts of erythrocytes in the blood or by hematocrit determinations, is confirmation of the diagnosis.

The majority of patients recover spontaneously under conservative management.

Surgical intervention is indicated if repeated episodes of hemorrhage occur or if the volume of circulating blood cannot be maintained by repeated transfusions of whole blood.

SUBPERITONEAL HEMORRHAGE encountered at operation, or observed at autopsy, has usually been reported as an uncommon and puzzling condition in which loss of blood had not been suspected.

In 1941, after experience with four cases and review of the literature, Cushman and Kilgore[2] described a series of signs and symptoms which it was believed would lead to clinical diagnosis in many instances. The initial symptom of the syndrome is dull, constant abdominal pain, sudden in onset and usually accompanied by nausea. Vomiting aggravates discomfort instead of bringing relief. Continued bleeding increases the intensity of the pain, owing to the gradually enlarging hematoma confined between leaves of a mesentery or beneath visceral peritoneum. There is apprehensive stirring and turning in vain search for a position of comfort. When bleeding stops, the pain gradually subsides, only to return on resumption of hemorrhage, which may be incited by eating, catharsis, retching or effort. Although bleeding doubtless very frequently stops and does not recur, these episodes of subsidence and return of pain, indicative of intermittent bleeding, have been repeatedly noted in reports of cases of proven subperitoneal hemorrhage. Several episodes may occur within a few hours, or the period between them may be several days.

Physical examination early in this phase before peritoneal rupture seldom reveals more than local tenderness without muscle rigidity. Later, if there has been considerable bleeding, the mass of the hematoma (in some locations) may be felt on careful palpation.

Normal pulse and blood pressure often give a false sense of security, even with rapid loss of blood in a short period of time. If hemorrhage is suspected, rapidly raising the patient to an upright position may cause definite increase in pulse and drop in pressure — the earliest objective evidence of acute loss of blood. Determination of the erythrocyte content of the blood and hematocrit estimations are also of little diagnostic value in the first few hours, but are invaluable as a baseline, since progressive anemia is confirmation of the clinical diagnosis.

If recurrences of bleeding are sufficiently far apart, successive drops in erythrocyte content with gradual recovery between incidents supplies dramatic proof of the diagnosis.

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PERITONEAL RUPTURE

If hemorrhage continues, slowly or rapidly, with or without remission, the overlying peritoneum ultimately ruptures. This is heralded by sudden excruciating exacerbation of pain, with shock which is often profound and frequently fatal. If the patient survives this, early abdominal examination reveals diffuse soreness and exquisite rebound tenderness without muscle guarding, which gradually merges into increasing rigidity with distention—the picture of hemoperitoneum with peritonitis and its concomitant adynamic ileus.

The etiologic delineation is that of apoplexy in general. Subperitoneal hemorrhage is twice as common in males, with greatest incidence in those with obvious vascular disease.

Onset is frequently precipitated by trauma or strain—often so minor in character as to seem insignificant. The source of bleeding is a branch of the superior mesenteric artery in nearly 75 per cent of cases.

The previously mentioned report on this condition,[2] published in 1941, was based on 22 cases—too few for statistical evaluation. The author now has reviewed data on 49 additional cases, including four personally observed, a total of 71, to assess the validity of description of the condition as a syndrome and to evaluate treatment.

TABLE 1.—*Classification of 71 Cases of Subperitoneal Hemorrhage*

	Total Cases	Average Duration of Symptoms (days)	Subsidence and Recurrence—Cases	Subsidence and Recurrence—Per cent
Operation				
Hematoma	18	3.1	6	28
Hemoperitoneum	30	10.0	15	50
No Operation				
Died	16	19.5	9	56
Recovered	7		4	59

Fifty of the 71 patients were male. Obvious vascular disease was present in 42 per cent, and history of trauma or strain was noted in 18 per cent (and probably would have been found in many more with meticulous inquiry).

Subsidence and recurrence of pain, progressive anemia, the appearance of a mass and secondary collapse imply sufficient duration of time to permit of recognition of these phenomena. Since the period of observation in these cases was terminated by operation in some instances and by either death or ultimate recovery without operation in others, they have been divided into four groups (Table 1).

Patients in the first and second group were operated upon in the hematoma and the hemoperitoneum phases, respectively. The third group was made up of patients who died without surgical intervention, and the fourth of those who recovered without operation. The average duration of symptoms was three days in the first group, ten days in the second, and 19 days in the group of those that died. No attempt was made to calculate duration of time before diagnosis in those who recovered.

The proportion of cases in which history of subsidence and recurrence of pain was obtained was in direct ratio to the duration of symptoms—28 per cent in the first group, 50 per cent in the second, 56 per cent in the third, and 59 per cent in the cases in which there was spontaneous recovery.

Erythrocyte count, hemoglobin value or hematocrit estimation was recorded in only 39 of the cases, and was repeated in but 13. The erythrocyte content when first determined was above 4,000,000 cells per cu. mm. in 18 cases (46 per cent), and less than 3,000,000 in six cases (15 per cent). Progressive loss of blood was demonstrated in all of the 13 cases in which repeated counts were made.

A palpable mass was recorded in eight cases. In 75 per cent of those patients known to have free blood in the abdomen, the onset could be identified by sudden increase in pain followed by collapse.

It seems evident that these signs and symptoms are quite constant in a substantial percentage of cases (Table 2), and that the syndrome of subperitoneal hemorrhage can lead to clinical diagnosis provided the possibility of bleeding is considered.

Diagnosis was made clinically in only four of the cases in which operation was done and in none of the cases in which the patient died without operation. Seven cases were diagnosed and the patients treated expectantly without mortality.

Active bleeding at operation was encountered in eight cases and was controlled by pack in two and by ligation in six, with one death. In eight cases resection or exteriorization was performed to prevent recurrence of bleeding, with two deaths. No active bleeding was found and no definitive operation was carried out in the remaining 32 cases, in 12 of which the patient died. The mortality rate for all cases in which operation was done was 32 per cent.

It is obvious that, contrary to general opinion, spontaneous recovery does occur and that operation is not the only method of treatment.

Failure to establish diagnosis led to unnecessary operation in many cases, and in others prevented adequate blood replacement and opportune operative intervention that might have been successful.

If the diagnosis of subperitoneal hemorrhage can be made, there is adequate time in most instances to replace lost blood. In many cases bleeding may cease and not recur, making operation unnecessary.

If it becomes apparent that operation is inevitable, either because of repeated episodes of hemorrhage or failure to maintain blood volume despite repeated transfusions, the chance of successful intervention is greatly enhanced by adequate preparation for definitive surgical procedure.

Presence of hemoperitoneum in itself is not an indication for operation. Attention should be directed toward bringing attendant shock under control. When that is done, it may be apparent that bleeding has ceased.

Surgical treatment of subperitoneal hemorrhage is a formidable operation since it frequently requires bowel resection—no simple procedure in the face of massive hematoma or hemoperitoneum. Discovery of an active bleeding point is fortuitous, seldom occurs, and should not be expected.

It is impossible to estimate the proportion of cases in which operation will be necessary, but personal

TABLE 2.—*Incidence of Signs and Symptoms in Cases of Subperitoneal Hemorrhage*

	Per cent
Vascular disease	64
Trauma or strain	18
Palpable mass (eight cases)	11
Subsidence and recurrence of pain	46.5
Initial evident anemia	54
Progressive anemia	100
Sudden collapse with hemoperitoneum	75

experience with eight patients, three subjected to exploration without definitive operation and the remaining five treated without operation, leads the author to believe that spontaneous recovery is the rule rather than the exception.

CASE REPORTS

CASE 1 (Reported through the courtesy of Dr. C. E. Smith): A woman 40 years of age was admitted to St. Joseph's Hospital with history of constant abdominal pain of five days' duration. The next day pain was centered in the right lower quadrant of the abdomen. It was not severe, but persistent and annoying. There was some diarrhea and finally nausea without vomiting.

The temperature was 99.4° F., the pulse rate 96, and respirations 18 per minute. The hemoglobin value was 91 per cent, erythrocytes numbered 4,860,000 per cu. mm. of blood, and leukocytes 17,400—70 per cent polymorphonuclear cells. The urine contained a few pus cells and there was a trace of albumin.

Upon examination local tenderness was noted in the right lower quadrant without rigidity. No mass was palpable. No abnormality was observed upon pelvic examination. The preoperative diagnosis was subacute appendicitis.

The cecum was delivered through a McBurney incision, disclosing a diffuse subperitoneal hematoma involving the ascending colon as far as it could be visualized and extending into the mesentery of the distal two inches of the terminal ileum. The caput of the cecum and the appendix were normal. The appendix was removed and the abdomen closed without disturbing the hematoma. The postoperative course was uneventful, and the patient was discharged on the fifth postoperative day.

It was later learned that the patient had been struck in the abdomen shortly before the onset of pain.

CASE 2 (Reported through the courtesy of Dr. G. D. Delprat): A 57-year-old man became nauseated and diarrhea developed concomitantly with continuous abdominal pain which subsided and recurred at intervals for four days. He then suddenly collapsed while eating in a restaurant and became unconscious. Taken to an emergency hospital for treatment of shock, he was later transferred to St. Luke's Hospital.

The blood pressure was 139 mm. of mercury systolic and 98 mm. diastolic. The erythrocyte content in the blood was 4,000,000 per cu. mm. and the hemoglobin value 67 per cent. Leukocytes numbered 19,200—80 per cent polymorphonuclear cells. The urine contained casts and the reaction for albumin was 4 plus.

There was pronounced tenderness throughout the abdomen with rigidity over the entire epigastrium. The peripheral blood vessels were arteriosclerotic.

The next day erythrocytes numbered 3,770,000 per cu. mm. and the hemoglobin value was 62 per cent.

The day following, the abdomen suddenly became boardlike. A diagnosis of carcinoma of the bowel with perforation and beginning peritonitis was made and operation was carried out. When the abdomen was opened, about one pint of dark red free blood was encountered and the transverse colon was observed to be gangrenous. The bowel was rapidly exteriorized and the patient was returned to the ward in poor condition. He died the next morning.

Thrombosis of the superior mesenteric artery and a mesenteric hematoma down to the cecum and along the splenic vessels were noted at autopsy.

CASE 3 (Reported through the courtesy of Dr. Wesley Scott and Dr. Martin Debenham): A woman, 28 years of age, was admitted to St. Joseph's Hospital with complaint of lower right quadrant abdominal pain which started suddenly as she arose from a chair four hours before admittance to hospital. The pain was constant in character but had gradually increased in severity. There had been no nausea or vomiting. There were 3,960,000 erythrocytes per cu. mm. of blood and the hemoglobin value was 73 per cent. Leukocytes numbered 13,050 per cu. mm. Upon physical examination localized tenderness without rigidity was noted in the right lower quadrant of the abdomen.

The preoperative diagnosis was acute appendicitis. Upon operation the appendix was found to be essentially normal and in further exploration a hematoma was observed in a pedunculated lipoma of the parietal peritoneum near the upper end of the incision. This was ligated at the base and removed. The postoperative course was uneventful. There was no evidence of vascular disease at that time or upon reexamination some five years later.

CASE 4 (Presented through the courtesy of Dr. Gilbert M. Barrett): A 65-year-old housewife was admitted to St. Luke's Hospital with complaint of weakness, nausea and constant girdling pain around the abdomen of a week's duration. The patient had vomited once two days before entry. Twenty-four hours later pain developed suddenly on the right side of the abdomen and was still present.

The pulse rate was 60 and the blood pressure 74 mm. of mercury systolic and 58 diastolic. Erythrocytes numbered 2,700,000 per cu. mm. of blood and the hemoglobin value was 54 per cent.

There was pronounced generalized tenderness of the abdomen. A mass was palpated in the right side, slightly higher than the cecum. No abnormality was noted roentgenographically with barium enema. In intravenous pyelograms there was evidence of displacement of the ascending colon to the right. The tentative diagnosis was malignant disease, and transfusions of whole blood were started in preparation for operation.

The pain gradually disappeared, then recurred on the tenth hospital day. Again it subsided, and on the fifteenth day returned. Once more it subsided and the patient was quite comfortable again, but shock developed suddenly on the seventeenth day and the patient died.

At autopsy a large amount of free blood was observed in the peritoneal cavity. It had come from a ruptured laminated hematoma in the mesentery of the terminal ileum. Minimal arteriosclerosis was noted in examination of the heart and blood vessels.

Following is the record of erythrocyte determinations and of transfusions of whole blood:

Day	Erythrocytes per cu. mm.	Transfusion
First	2,700,000	500 cc.
Third	2,700,000	500 cc.
Fifth	2,300,000	500 cc.
Twelfth	2,100,000	500 cc.
Fourteenth	.....	500 cc.
Sixteenth	.....	500 cc.
Seventeenth	1,900,000	

CASE 5 (Reported through the courtesy of Dr. E. L. Bormann): A 6-year-old girl was admitted to the Palo Alto Hospital, January 16, 1949. Thirty-six hours before entry aching pain had developed in the abdomen and it had gradually increased. There had been no nausea or vomiting, and no bowel movement for 24 hours. The family stated that the patient had been kicked in the abdomen by her four-year-old brother two days before but had complained only a little

at the time. The temperature was 99.6° F. and the pulse rate 96.

There was slight abdominal distention, tenderness and rigidity in the right lower quadrant, and mild rebound tenderness referred to the right lower quadrant. Leukocytes numbered 16,000 per cu. mm. of blood. The urine was normal.

Five hours later the local signs had increased. The provisional diagnosis was appendicitis or mesenteric adenitis. The abdomen was entered through a McBurney incision. The appendix and mesenteric glands were normal. A mass felt in the upper right quadrant was delivered into the wound and was observed to be a 7x4x1 cm. infarct of the omentum. It was resected and the abdomen closed. Convalescence was normal and the patient was discharged on January 21, 1949.

The pathologist's report was: "Extensive hemorrhage along the fascial planes and around small blood vessels. A single vessel shows thrombosis with partial recanalization."

CASE 6 (Reported through the courtesy of Dr. Ruth Fleming): A 15-year-old boy was admitted to St. Joseph's Hospital February 20, 1952, about eight hours after an automobile accident. About two hours before entry he had received sedation for severe pain at an emergency hospital and was semi-conscious on arrival, but could be roused. The temperature was 96.6° F., the pulse rate 112, and respirations 24 per minute. The blood pressure was 90 mm. of mercury systolic and 60 mm. diastolic.

The patient was pale, perspiring, and obviously in shock. There were large bruises over the right hip and the lower ribs on the right side. The only abnormality noted in neurological examination was that the pupils of both eyes were small and did not respond to light. The lungs were clear and expansion was equal. The abdomen was slightly distended but soft to palpation. No masses were felt. There was no audible peristalsis.

There were 4,500,000 erythrocytes per cu. mm. of blood and the hemoglobin value was 80 per cent. Leukocytes numbered 52,000 per cu. mm.—97 per cent polymorphonuclear cells. The cell volume was 33 per cent of the whole blood. Blood was visible in the urine.

The patient was given 500 cc. of whole blood as soon as typing and cross matching could be carried out. The pulse rate promptly decreased and the blood pressure increased. During the first two hours the patient vomited about 400 cc. of "coffee-ground" material.

Upon repeated abdominal examinations some rigidity of the right abdominal wall and tenderness to palpation were noted. The patient complained of abdominal pain, which was relieved by codeine. Abdominal peristalsis was demonstrated and no evidence of free air was observed in a plain film of the abdomen. There was no further vomiting. The tentative diagnosis was retroperitoneal hemorrhage.

The patient was permitted to take fluids by mouth on the second hospital day and food on the third. The abdominal pain gradually subsided and a mass was palpable in the right subcostal area. On the fifth hospital day, after two days in which there was no discomfort, steady pain again developed in the right side and it was necessary to give codeine for relief. The pain gradually diminished and the patient was permitted to sit up on the twelfth day. He soon became nauseated, however, and once more there was dull pain on the right side for a short time. Convalesence thereafter was rapid and uneventful. The patient was dismissed on the seventeenth day, and two months later was still well.

A record of erythrocyte determinations, hematocrit readings and transfusions of whole blood follows:

Date	Erythrocytes per cu. mm.	Cell Volume (per cent of whole blood)	Transfusions
Feb. 20, 1952	4,500,000	33	500 cc.
Feb. 21, 1952	3,600,000	33	500 cc.
Feb. 22, 1952	.....	34	.....
Feb. 23, 1952	2,870,000	27	500 cc.
Feb. 24, 1952	.....	39	.....
Feb. 25, 1952	.....	32.5	.....
Feb. 26, 1952	3,640,000	37	.....
Feb. 27, 1952	.....	40	.....
March 1, 1952	4,000,000	39	.....
March 3, 1952	3,600,000	36	.....
March 6, 1952	4,380,000	40	.....

CASE 7: The patient, a 30-year-old woman, was observed in consultation with Dr. L. Parry Douglass.

At about 1 p.m. the patient became aware of a dull pain in the epigastrium. It was localized and steady, with few remissions, and gradually increased in intensity. At 6 p.m. the pain, then moderately severe, was localized in both upper quadrants of the abdomen. Two hours later there was unbearable pain over the entire abdomen and radiating to the back. The patient took three glasses of baking soda and water, administered an enema, and then induced vomiting. This gave transient relief, but the pain returned suddenly with even greater intensity and the patient was admitted to St. Joseph's Hospital.

The patient said that menstruation was regular and normal and that the last period had ended five days previously. The temperature was 99.6° F., the pulse rate 92 and respirations 22 per minute. The blood pressure was 104 mm. of mercury systolic and 62 mm. diastolic.

There was diffuse generalized tenderness over the entire abdomen with moderate muscular guarding and exquisite rebound tenderness. The peristaltic sounds were normal to auscultation. No shifting dullness was elicited on percussion. Results of pelvic examination were normal. A plain film of the abdomen was reported to show a "moderate amount of gas in the large bowel and some slightly dilated loops of small bowel in the left flank, possibly due to an early ileus or obstruction." Erythrocytes numbered 4,100,000 per cu. mm. of blood. The hemoglobin value was 78 per cent. Leukocytes numbered 9,200 per cu. mm.—82 per cent neutrophils. The urine was normal.

The tentative diagnosis was hemoperitoneum due to rupture of hematoma, source undetermined.

The patient was given sufficient medication to control pain and ingestion of liquids was restricted. The next day the observations upon physical examination were essentially the same as before except for slight increase in abdominal distention. Since liquids were well tolerated by mouth, restriction was discontinued. On the third day the patient moved more freely in bed but would not turn on her side. The physical findings remained the same. Later in the day the patient complained of pain in the left shoulder.

Fluoroscopic examination on the fifth day showed some limitation of motion of the left dome of the diaphragm without elevation. There was a large amount of gas in the colon.

Throughout this time pronounced tenderness and rigidity of the abdomen persisted, and the pain in the left shoulder, while not as acute as when first noted, was still present. The peristaltic sounds of the abdomen were of normal pattern, and although there was slight distention the patient passed flatus and a loose stool. No abnormality was noted in repeated vaginal examinations. All symptoms and objective findings gradually subsided. As the patient improved,

tenderness and spasm lingered in the left side below the ribs. In a roentgen study with barium enema on the fourteenth hospital day, moderate spasm of the sigmoid colon was noted. Sigmoidoscopic examination was carried out and the mucosa was observed to be normal. Erythrocyte determinations after the first day were as follows: Second day, 4,500,000 per cu. mm.; third day, 3,720,000; fifth day, 3,990,000; fourteenth day, 4,700,000.

The patient was discharged from the hospital on the sixteenth day with slight residual tenderness in the left side which soon abated. There was no recurrence in eight months.

CASE 8 (Referred by Dr. Walter Kollman): A 55-year-old fireman was admitted to St. Joseph's Hospital with complaint of severe upper abdominal pain. He had been awakened about 4 a.m. by constant severe discomfort in the epigastrium which he attributed to indigestion induced by a heavy meal the evening before. He was nauseated but did not vomit. After the patient had sat up awhile rubbing his abdomen the pain gradually diminished and he was able to fall asleep. Two hours later he was again awakened by recurrence of pain more severe than before.

The temperature was 99° F., the pulse rate 84, and blood pressure 190 mm. of mercury systolic and 106 mm. diastolic. The erythrocyte content of the blood was 5,070,000 per cu. mm. and the hemoglobin value 110 per cent. Leukocytes numbered 17,300 per cu. mm.—92 per cent polymorphonuclear cells.

Upon examination of the abdomen (fifteen hours after onset of pain) moderate muscle rigidity and some distention were noted. There was quite pronounced diffuse tenderness to palpation, most evident in the epigastrium. Upon auscultation the peristaltic sounds were noted to be few and faint.

The pain seemed to have become somewhat colicky in character, and operation was advised upon a tentative diagnosis of mesenteric thrombosis. When the peritoneum was opened, approximately 500 cc. of dark red blood was evacuated. The small bowel was distended and inflamed. In careful examination of the full length of the bowel no evidence of obstruction was noted. The pancreas seemed slightly indurated but there was no evidence of fat necrosis. The mesentery of the bowel did not contain a hematoma and no source of bleeding was found. The abdomen was closed and the patient was returned to his room in fair condition with indwelling intestinal suction which continued for three days. The distention subsided and normal peristalsis returned. Convalescence was uneventful and the patient was discharged on the twelfth hospital day. He had no recurrence of symptoms.

CASE 9: A 29-year-old housewife entered St. Joseph's Hospital on January 2, 1949. She had been struck beneath the right costal margin during a New Year's Eve brawl. The blow was hard enough to "knock the wind out of me" but had no other immediate effect. About two hours after retiring, she was awakened by constant and gradually increasing pain in the region where the blow had landed. She became nauseated and vomited repeatedly without relief. Pain subsided to a dull ache the next day but recurred in greater severity on the morning of entry.

Erythrocytes numbered 3,010,000 per cu. mm. of blood, and the hemoglobin value was 63 per cent. There were 12,000 leukocytes per cu. mm.—91 per cent neutrophils. Results of urinalysis were within normal limits.

The only abnormality noted upon physical examination was pronounced diffuse tenderness in the upper right quadrant of the abdomen, without muscle spasm. The chest and abdomen were roentgenographically normal.

The tentative diagnosis was subperitoneal hemorrhage. Ingestion of fluids was discontinued and the fluid balance was maintained by parenteral injection. Typing and cross-matching of the patient's blood was carried out and the house staff was alerted to the possibility of sudden collapse and need for therapy to overcome shock.

Nausea and vomiting promptly ceased and pain gradually diminished. Three days after the patient was admitted, a tender mass which did not move with respiration could be palpated in the upper right quadrant of the abdomen. A soft diet was started on the fourth hospital day. Convalescence was uneventful and the patient was discharged January 17. When the patient was last examined, two months later, the mass was still palpable, but less definite. She was reported to have remained well.

Data on erythrocyte determinations and transfusions of whole blood follow:

Day	Erythrocytes per cu. mm.	Transfusions
Jan. 2	3,010,000	.....
Jan. 3	2,910,000	500 cc.
Jan. 5	3,020,000	500 cc.
Jan. 6	3,910,000	.....
Jan. 17	4,760,000	.....

CASE 10: A 46-year-old man slipped while working on a step ladder. As he fell a metal extension struck him in the abdomen on the left rectus muscle, causing severe immediate pain which diminished to a dull ache. He finished his work without difficulty but three hours later, after he had eaten dinner, the pain gradually increased in severity. It was constant in character and soon caused nausea and vomiting which gave no relief. The patient was admitted to St. Joseph's Hospital eight hours after injury. At the time of admittance the patient seemed apprehensive and obviously was in severe pain which prevented his remaining still. The temperature was 97.8° F., the pulse rate 52, respirations 18 per minute, and the blood pressure 122 mm. of mercury systolic, and 90 mm. diastolic.

The abdomen was soft to palpation, with localized tenderness to the left of the umbilicus. Contraction of the recti caused no change in the pain. Bowel sounds were normal.

No evidence of free air was observed in an x-ray film of the abdomen and the gas pattern appeared to be normal. The shadow of the right psoas was sharp and distinct but there was a bulging haziness in the lower half of the left psoas. The roentgenologist interpreted this as evidence of possible hemorrhage into the left psoas muscle. The tentative diagnosis was subperitoneal hemorrhage. All oral intake was stopped. Codeine, 0.06 gm., with sodium phenobarbital, was given intramuscularly. The pain was relieved, and eight hours later the patient was given fluid by mouth, starting with 1000 cc. of 5 per cent glucose in normal saline solution to restore fluid balance. A soft diet was instituted with six feedings a day. There was no recurrence of pain. The abdomen remained soft and flat and local tenderness gradually diminished. The patient was dismissed from the hospital on the fourth day and was discharged from further care, asymptomatic, two weeks later.

Laboratory data on examinations of the blood were as follows:

Day	Erythrocytes	Leukocytes	Hematocrit
Day of admittance (11 p.m.)	5,410,000	23,500 (95% neutrophils)	.....
First morning	5,000,000	.....	.....
afternoon	4,690,000	20,000	38 mm.
Second	4,820,000	.....	.....
Third	4,760,000	.....	47 mm.

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Shipment of "Cancer Diagnosis Kit" Enjoined

FOOD AND DRUG ADMINISTRATION has obtained a permanent injunction against the William Dunkler Laboratories, Chicago, to stop shipments of Dunkler's cancer diagnosis kit. Dr. Gordon Granger, FDA medical officer, commented: "The danger to public health of this scheme for cancer detection is emphasized by the fact that . . . tests showed negative results in 59 of 76 cases known to be malignant."—*From the A.M.A. Capitol Clinic.*